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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/680,082

10/07/2003

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1300-000007

9926

27572 7590 06/17/2010
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EXAMINER

HOLLWEG, THOMAS A

ART UNIT

PAPER NUMBER

2879

MAIL DATE

DELIVERY MODE

06/17/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/680,082	Applicant(s) ASANO ET AL.	
	Examiner Thomas A. Hollweg	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/13/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement of Amendment

1. Applicant's Amendment of March 22, 2010, is acknowledged. Claim 16 is canceled. No claims are added. Claims 1-8 and 14-15 are currently pending.
2. The amendments to claim 2 are acknowledged. The objections to claim 2 are withdrawn.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on October 13, 1009, is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1, 2, 6 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamauchi et al., U.S. Patent No. 6,512,504 B1.**
6. **With regard to claim 1**, in figures 9 and 11B, Yamauchi discloses that a color conversion member comprising a transparent substrate (4102, fig. 11B), color conversion layers (65), and a color filter layer (66), said color conversion layers (65)

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functioning to convert incident lights for respective pixels to outgoing lights of colors different from the incident lights, said color conversion layers being arranged on said transparent substrate (4102); any one of the color conversion layers (65) have a stepped convex surface; and said color filter layer (66) being provided on the transparent substrate (4102) side of any one of the color conversion layers (65) or between said any one of the color conversion layers (65) and the color conversion layers (65) adjacent to said any one of the color conversion layers (65) (col. 14, lines 11-25).

7. **With regard to claim 2**, in figures 9 and 11B, Yamauchi discloses that another color filter layer (66) is provided on the transparent substrate (4102) side of another one of the color conversion layers (65) (only one element is shown in figure 9, however a full color display is disclosed (col. 14, lines 14-16)).

8. **With regard to claim 6**, in figures 9 and 11B, Yamauchi discloses that the color conversion member is used in an EL display (col. 14, lines 11-25).

9. **With regard to claim 7**, in figures 9 and 11B, Yamauchi discloses an EL display comprising the color conversion member and a luminescent part comprising a transparent electrode layer (64), an EL layer (62), and a backside electrode layer (60), said luminescent part being provided on the color conversion layers so as to correspond to each of the color conversion layers (col. 14, lines 11-25).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-8, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al., U.S. Patent No. 6,072,450, in view of Okabe et al., U.S. Patent No. 6,450,635 B1.

12. With regard to claim 1, in figure 15, Yamada discloses that a color conversion member comprising a transparent substrate (51), color conversion layers (57), and a color filter layer (55), said color conversion layers (57) functioning to convert incident lights for respective pixels to outgoing lights of colors different from the incident lights, said color conversion layers being arranged on said transparent substrate (51); and said color filter layer (55) being provided on the transparent substrate (51) side of any one of the color conversion layers (57) or between said any one of the color conversion layers (57) and the color conversion layers (57) adjacent to said any one of the color conversion layers (57) (col. 13, lines 49-65).

13. Yamada discloses that the color conversion layers have a curved surface so that the incident angle of the light is different from the initial incident angle, and light is not internally reflected, increasing the efficiency of the device (col. 13, lines 49-65).

However, Yamada does not expressly disclose that the color conversion layer has a stepped convex surface.

14. Okabe, in figure 2, teaches a color filter substrate where the color filter layer (6) has a stepped convex surface because it is formed on a wettability-variable layer (5) (col. 14, line 54 – col. 15, line 3). The wettability-variable layer serves to aid in the

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deposition of inkjet layers, so that the layers are uniform and disposed in the proper area, resulting in a better color filter (col. 2, lines 38-55).

15. One having ordinary skill in the art would recognize that the wettability-variable layer of Okabe can be used in Yamada to improve the deposition of both the color filter layers and the color conversion layers so that the layers are uniform and disposed in the proper area. The resulting layers would have stepped convex surfaces, similar to layer 6 of Okabe. This combination would have an additional benefit. The layers would have curved surfaces, like the color conversion layers (57) shown in Yamada figure 15, so that the incident angle of the light is different from the initial incident angle, and light is not internally reflected, increasing the efficiency of the device.

16. Therefore, at the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Yamada device including the wettability-variable layer so that the color conversion layer has a stepped convex surface so that the layer is uniform and disposed in the proper area, and the incident angle of the light is different from the initial incident angle, and light is not internally reflected, increasing the efficiency of the device.

17. **With regard to claim 2**, in figure 15, Yamada discloses that another color filter layer (55G) is provided on the transparent substrate (51) side of another one of the color conversion layers (57G) (col. 13, lines 49-65).

18. **With regard to claim 3**, in figure 15, Yamada discloses that a black matrix (54) having openings is further provided on the transparent substrate (51) and said color conversion layers (57) are provided in the openings (col. 13, line 24).

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19. **With regard to claim 4**, in figures 14 and 15, Yamada discloses two or more types of the color conversion layers (57) comprise a first color conversion layer (57R) for converting incident light of blue color and/or green color to outgoing light of red color, a second color conversion layer (57G) for converting said incident light to outgoing light of green color, and a light transparent layer (53) for transmitting said incident light as such (see figure 14), and a color filter layer (55R) for a red color is provided on the transparent substrate (51) side of the first color conversion layer (57R) or between the first color conversion layer and other color conversion layers adjacent to the first color conversion layer (col. 13, lines 37-65).

20. **With regard to claim 5**, in figure 15, Yamada discloses a color filter layer for a green color (55G) is further provided on the transparent substrate (51) side of the second color conversion layer (57G) (col. 13, line 13)

21. **With regard to claim 6**, in figure 15, Yamada discloses that the color conversion member is used in an EL display (col. 11, lines 47-65).

22. **With regard to claim 7**, in figure 15, Yamada discloses an EL display comprising the color conversion member and a luminescent part comprising a transparent electrode layer (17), an EL layer (16), and a backside electrode layer (15), said luminescent part being provided on the color conversion layers (57) so as to correspond to each of the color conversion layers (col. 11, lines 47-65).

23. **With regard to claim 8**, in figure 15, Yamada discloses that the luminescent part is provided through an overcoat (53) on said color conversion layers in said color conversion member (col. 12, lines 20-24).

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24. **With regard to claim 14**, the combined Yamada and Okabe having the wettability-variable layer, discussed in the rejection of claim 1 above has color filter layers that have a convex surface.

25. **With regard to claim 15**, in figure 15, Yamada discloses that a color conversion member comprising a transparent substrate (51), color conversion layers (57), and a color filter layer (55), said color conversion layers (57) functioning to convert incident lights for respective pixels to outgoing lights of colors different from the incident lights, said color conversion layers being arranged on said transparent substrate (51); and said color filter layer (55) being provided on the transparent substrate (51) side of any one of the color conversion layers (57) (col. 13, lines 49-65).

26. Yamada discloses that the color conversion layers have a curved surface so that the incident angle of the light is different from the initial incident angle, and light is not internally reflected, increasing the efficiency of the device (col. 13, lines 49-65).

However, Yamada does not expressly disclose that the color conversion layer has a stepped convex surface toward the transparent substrate, or that the color filter layers comprise a stepped convex surface toward the transparent substrate.

27. Okabe, in figure 2, teaches a color filter substrate where the color filter layer (6) has a stepped convex surface because it is formed on a wettability-variable layer (5) (col. 14, line 54 – col. 15, line 3). The wettability-variable layer serves to aid in the deposition of inkjet layers, so that the layers are uniform and disposed in the proper area, resulting in a better color filter (col. 2, lines 38-55).

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28. One having ordinary skill in the art would recognize that the wettability-variable layer of Okabe can be used in Yamada to improve the deposition of both the color filter layers and the color conversion layers so that the layers are uniform and disposed in the proper area. The resulting layers would have stepped convex surfaces toward the transparent substrate, similar to layer 6 of Okabe. This combination would have an additional benefit. The layers would have curved surfaces, like the color conversion layers (57) shown in Yamada figure 15, so that the incident angle of the light is different from the initial incident angle, and light is not internally reflected, increasing the efficiency of the device.

29. Therefore, at the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Yamada device including the wettability-variable layer so that the color conversion layer has a stepped convex surface toward the transparent substrate and the color filter layers comprise a stepped convex surface toward the transparent substrate, so that the layers are uniform and are disposed in the proper area, and the incident angle of the light passing through the layers is different from the initial incident angle, and light is not internally reflected, increasing the efficiency of the device.

Response to Arguments

30. Applicant's arguments have been fully considered but are moot in light of the new grounds for rejection.

Conclusion

31. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

32. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Hollweg whose telephone number is (571) 270-1739. The examiner can normally be reached on Monday through Friday 7:30am-5:00pm E.S.T..

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

35. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TH/

/NIMESHKUMAR D. PATEL/

Supervisory Patent Examiner, Art Unit 2879